

## Service Quality Measurements: A Review

Ali Ramezani Ghotbabadi, Setareh Feiz, Dr. Rohaizat Baharun  
Universiti Teknologi Malaysia (UTM), Faculty of Management, 81310 UTM Skudai,  
Johor,  
Malaysia

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### Abstract

Service quality measurement is one of the significant measurement tools for firms to understand consumers' needs and wants by analyzing the experience of consumers and customers' satisfaction on the services provided. Although there is no general agreement on one particular model used as the measurement of service quality perceived, there are some effective models offered by researchers during decades of study in this area. In the recent years, researchers believe that service quality is multilevel/multidimensional. In addition, industry-specific models which suggested based on the structure of generic models regarding a specific industry found as the most useful models. This article review, presents an overview of researches on the service quality measurement models. The article reviews the advantages and disadvantages of the main service quality measurements and pinpoints the most comprehensive, efficient, effective, and useful measurement.

**Keywords:** Service Quality; SERVQUAL; SERVPERF; Hierarchical; Multidimensional  
JEL Codes: M31

### 1 Introduction

The main goal of every firm is to make profit and increase productivity. Acquiring new customers and increasing the number of customers can boost the sale of the firm. By reaching the margin of revenue, firms are trying to make more profit. The strategy of acquiring more customers may lead the firm to more sale, profit, and market share. However, the other way of making more profits is by keeping current customers, which is a more significant approach than acquiring new customers. Keeping current customers helps firm in two paths. First, by reducing the marketing cost, current customers who are satisfied or loyal to the firm need less advertisement and marketing activities. Second, increasing the sale with the retention of current customers, keeps current customers to bring more profits for the firm, and the loyalty and retention of customers contribute more growth to firm (Kotler & Armstrong, 2007).

In both strategies for increasing the profits – acquiring new customers and keeping current customers – quality is the key of success in motivating customers to purchase intention (Kotler & Armstrong, 2007). Businesses are divided into two main industries as product and service categories in which the quality of products or services influence customers in terms of satisfaction, loyalty and intention to purchase (Bowen & Chen, 2001; Cronin & Taylor, 1992;

Parasuraman, Zeithaml, & Berry, 1985). Service industries have some especial characteristics like intangibility, heterogeneous, and inseparable from consumption that make them more difficult to be evaluated (Gronroos, 1988). Describing a service by customers comes along with some expressions like trust, experience, security, and feeling which are hard to measure because of high intangibility of the nature of services (Gronroos, 1988). Because of these service characteristics, measuring the factors related to this industry is much harder than the product industry. Controlling the quality of services also becomes hard for the firms, if they only focus on the traditional control of production, it may not be able to control the marketing process. Therefore, there is a need to find some tangible factors for better understanding of customers' experience with services.

### **Service Quality Background**

In marketing, the theory of business development and service management is necessary to understand the needs and wants of customers, what they evaluate and are really looking for (Gronroos, 1988; Kotler & Armstrong, 2007). The critical factor of business performance is customers' satisfaction that leads to loyalty, repurchase intention, and even recommendation to others (word of mouth) (Anderson & Sullivan, 1993; Brady & Cronin, 2001b; Kotler & Armstrong, 2007). Firms need to understand the experience of customers and their perception of the service used to provide better services in order to attain the satisfaction of current customers and acquire new customers. For these purposes, the firms need a comprehensive model to measure the customers' perception on the service quality. This model must be able to make tangible and measurable perception of the customers about an intangible service which requires such a hard work and needs strong theoretical and empirical researches. During decades of researches in this area, there is no general consistency in the marketing literature between scientists for a comprehensive model to measure service quality. However, there are lots of model generated and used in various service industries but there is no general agreement about the specific model introduced.

The focus on marketing literature has been changing simultaneously with the changes in the dominant market during the years. As shown in Figure 1, the dominant market changed during the years and the marketing strategies developed and changed as well based on the market. Before 1980s, the market and marketing activities were dominant by products, focus on the products and the increase of production and sale but in the 80s dominance turned to market instead of products and the marketing strategies developed the marketing mix theory and focused on competitive position. During the recent decades and especially in the 2000s market dominance has been changed to services. Service businesses increase and dominate the market; therefore scientists developed new marketing strategies suitable for the market and customers. Customers' information and knowledge have eased during the recent years because of the media development and easy access to the information and this increases the necessity for the development in marketing strategies. From the 80s to recent years the dominance in the market has changed from the product to services and the marketing strategies turn to customer base and relationship that are the keys for service industries which are dominant in the market today. Increasing the service industry dominance in the market and variety of services raise the necessity of service quality to attain the customers' satisfaction in the customer relationship based marketing today. Service quality can help service providers to find their weaknesses and advantages at the same time with customers' needs and desires.

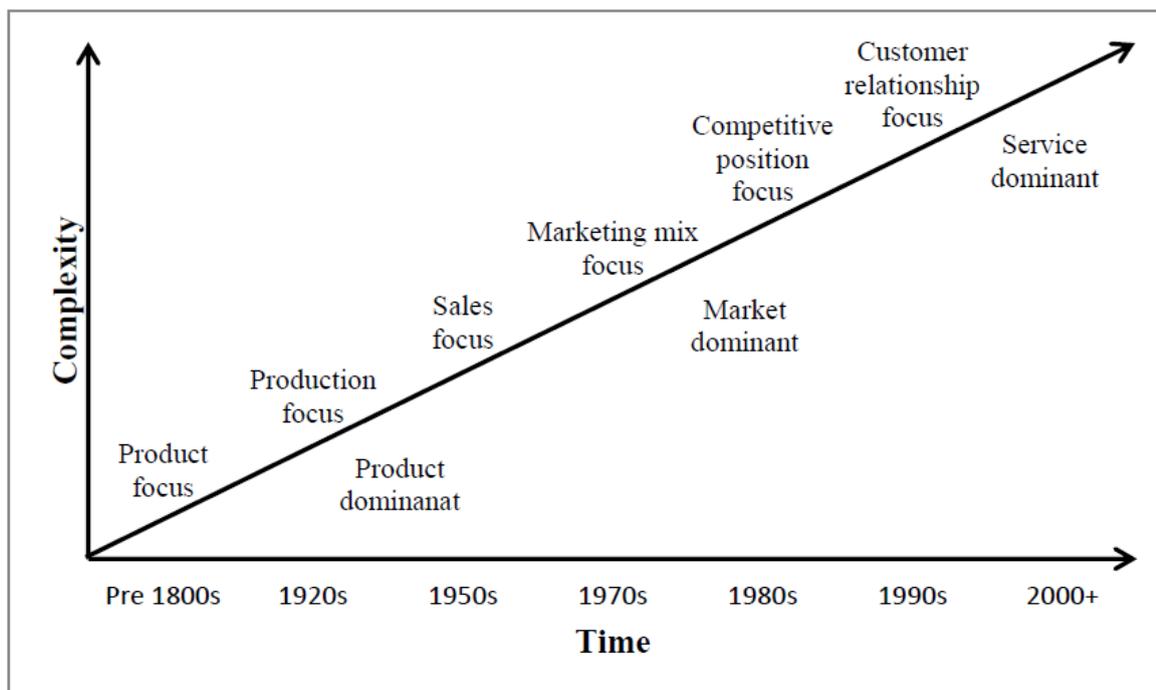


Figure 1: Changing focus of marketing (Harwood & Garry, 2008)

Because of the changing in market and the needs of marketing development in the service industries, scientists and practitioners feel the need for a suitable model to measure service quality in order to be active in the competition and get the competitive advantages in high competitive market. Therefore, researchers introduced and developed some models for measuring service quality. Service quality literature is based on product quality literature (Brady & Cronin, 2001a) but scientists introduced and developed lots of other models for service quality that are specifically for service industry. Although there is no general agreement on one particular model for measuring service quality, many of them are useful for industries and businesses in service categories. Scholars and practitioners are unanimous about the phenomenal role of service quality in the performance of firm and its strong impact on customers' satisfaction, loyalty, and repurchase intention (Brady & Cronin, 2001b; Cronin & Taylor, 1992; Parasuraman, Zeithaml, & Berry, 1988). High level service quality has strong and positive impacts on the firm outcomes such as increasing customers' loyalty, high market share, and improving the profitability (Brady & Cronin, 2001a). In order to improve customers' loyalty and profitability, the firms must reach the customers' satisfaction as the first step which is necessary for keeping customers and attaining good reputation in public. Customers' satisfaction comes from the experience of the customers in using the services. Customers' perception on the service provided may lead to satisfaction or dissatisfaction hence making the role of quality service crucial in this process. There is a strong effect of customers' satisfaction on the firm performance and the effect of service quality on customers' satisfaction and profitability. Therefore, marketing managers need a tool to identify their advantages and weaknesses to consider and implementing strategic planning for improving efficiency, profitability, and overall performance via improvement of service quality. As a result, the interest of the researchers increased in the recent years in finding the best and comprehensive model for measuring customers' perception on the service quality. The theory of service quality is based on product quality and customers satisfaction literature (Brady & Cronin, 2001a). In 1988, Zeithaml defined service quality as "an assessment of

customers from the overall excellence of services". Although researchers have general agreement on the significant role of service quality on customers' satisfaction and performance of the firms, there is no unanimous notion on the model of service quality measurement. Service quality is multidimensional (Brady & Cronin, 2001a; Parasuraman et al., 1988) and dimensions can vary according to the different service industries (Pollack, 2009). Nevertheless, service quality measurement enables managers to identify the problem in the service provided to the customers to enhance the efficiency and quality for the purpose of customers' satisfaction and fulfilling desire.

Service quality has been studied wildly from the early of 1980 when Gronroos introduced the first model for measuring service quality called the Nordic model. He believes in distinguishing technical qualities as an outcome for the service performance and functional qualities as a subjective perception of the service provided. After that Parasuraman, Zeithaml, and Berry introduced a new model called SERVQUAL in 1985 which is the most famous and used model in service quality. At first, they suggested ten dimensions for their model but in the new version of this model in 1988 they reduced the dimensions into five. The basis of this model was on measuring the differences between expectation and perception of the customers on the service provided through five suggested dimensions. During these three decades, researchers introduced other models and measurements for service quality and the majority of them will be evaluated in the next part.

### **Service Quality Models**

Some of the main and most used service quality models which are more accepted in field of service quality measurement evaluated in this section. Strengths and weaknesses of each model discussed in order to represent the best fit model in the service quality measurement.

#### **Gronroos Model**

The early conceptualization of service quality model is formed by Gronroos (1982, 1984). He believed that if a firm wants to be successful, it is vital for the business operator to understand the customers' perception on the service provided. Service quality management means matching the perceived quality with expected quality and keeping this distance as small as possible in order to reach customers' satisfaction. He suggested three dimensions of service quality. The first dimension, Technical (outcome) means what customers received as a result of interaction with a service firm. The other component is Functional (process) which means how a technical service received by customer. The way of service process is very important in customers' evaluation on the service quality. However, the service outcome received by the customers is upon their desire and the process of receiving service has influence onto the customers' evaluation and view of the service. By comparing these two factors of service the quality expected and received by the customers, we can get the perceived service quality. The third dimension of service quality in this model is Corporate Image which is the customers' view of corporate or brand. The customers' expectation is influenced by their view of the firm and it is the result of how customers perceived firm services. Therefore, the image is built up by the technical quality and functional quality. There are other less important factors that can affect image such as: traditional marketing activities (i.e., advertising, pricing, and public relations), ideology, tradition, and word-of-mouth.

It was the first attempt to introduce a real model for measuring perceived service quality. The main problem of this model was the lack of explanation for measuring technical quality and functional quality. In the years after, Rust and Oliver (1994) developed this model by

adding one more dimension to Gronroos' (1984) model that is Service Environment. The other two dimensions suggested by them were called service product (i.e., technical quality) and service delivery (i.e., functional quality) but they did not test their model and a few supports were found using and testing this model.

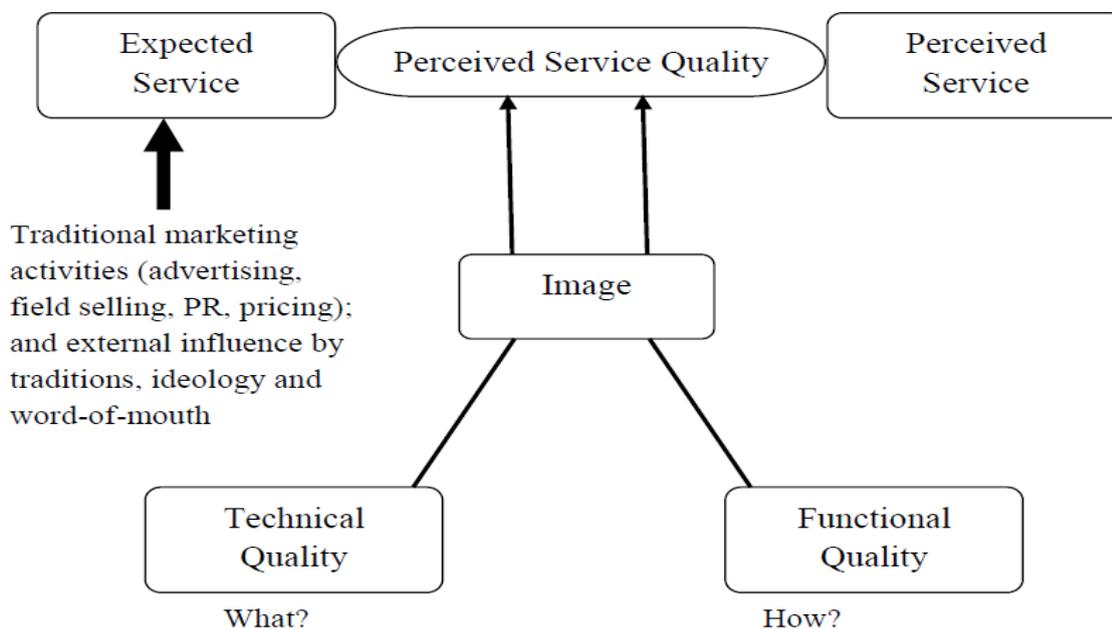


Figure 2: The Gronroos model (Gronroos, 1984)

### Service Quality GAP model

Gronroos model was based on disconfirmation model that puts perceived service against expected service. Disconfirmation model is based on product quality literature which is the base of service quality. Based on disconfirmation model, Parasuraman, Zeithaml, and Berry (1985) suggested a new model for service quality measurement by measuring the gap between perceived service and expected service. The construction of their theory for using the gap analysis in service quality is shown in Figure 3. In this exploratory study, they found five gaps between expectation and perception in service quality to be measured.

They proposed the gap analysis for service quality by measuring the difference between expectation and service performance. In this model they found five gaps to be measured:

Gap 1: The difference between consumers' expectations and management perceptions of the customers' expectations

Gap 2: The difference between management perceptions of consumers' expectation and service specifications

Gap 3: The difference between service quality specifications and service provided

Gap 4: The difference between service provided and external communications to the customers

Gap 5: The difference between customers' expectation and consumers' perception of the service. This gap depends on four gaps associated with service quality delivered on marketer side.  $Gap\ 5 = f(Gap1, Gap2, Gap3, Gap4)$

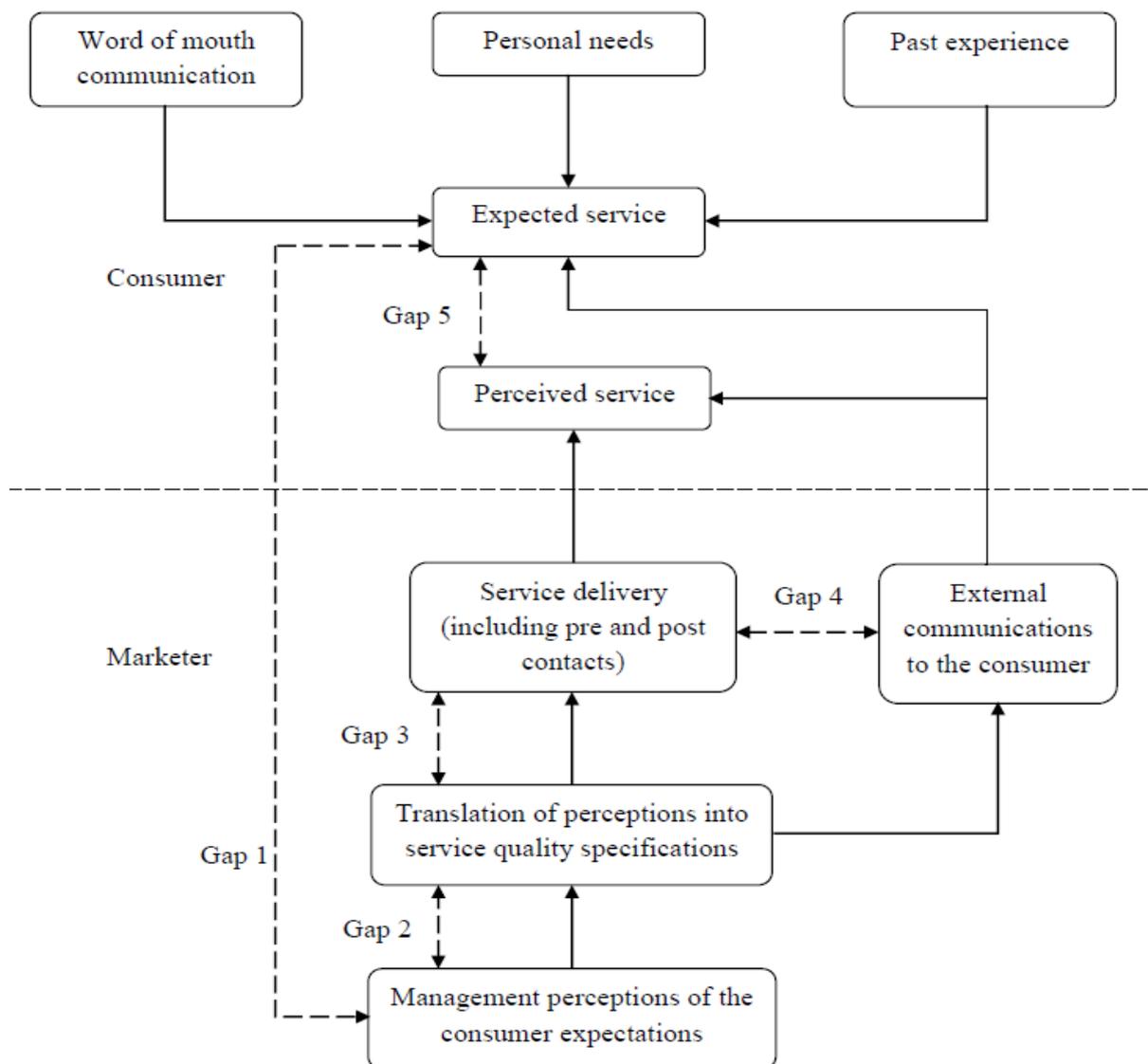


Figure 3: The Gap theory of service quality (Parasuraman et al., 1985)

Frost and Kumar (2000) have developed an internal service quality gap model based on the concept of GAP model (Parasuraman et al., 1985). The purpose of this model is to evaluate the dimensions, and their relationships that determine service quality among internal customers (front-line staff) and internal suppliers (support staff) within a large service organization.

Gap 1 shows the difference between support staff's perception (internal supplier) and the front-line staff's expectation (internal customers). Gap 2 is the significant difference between service quality specifications and the service actually delivered resulting in an internal service performance gap. Gap 3 focuses on the front-line staff (internal customers). The gap is based on the difference between front-line staff's expectations and perceptions of support staff's (internal supplier) service quality.

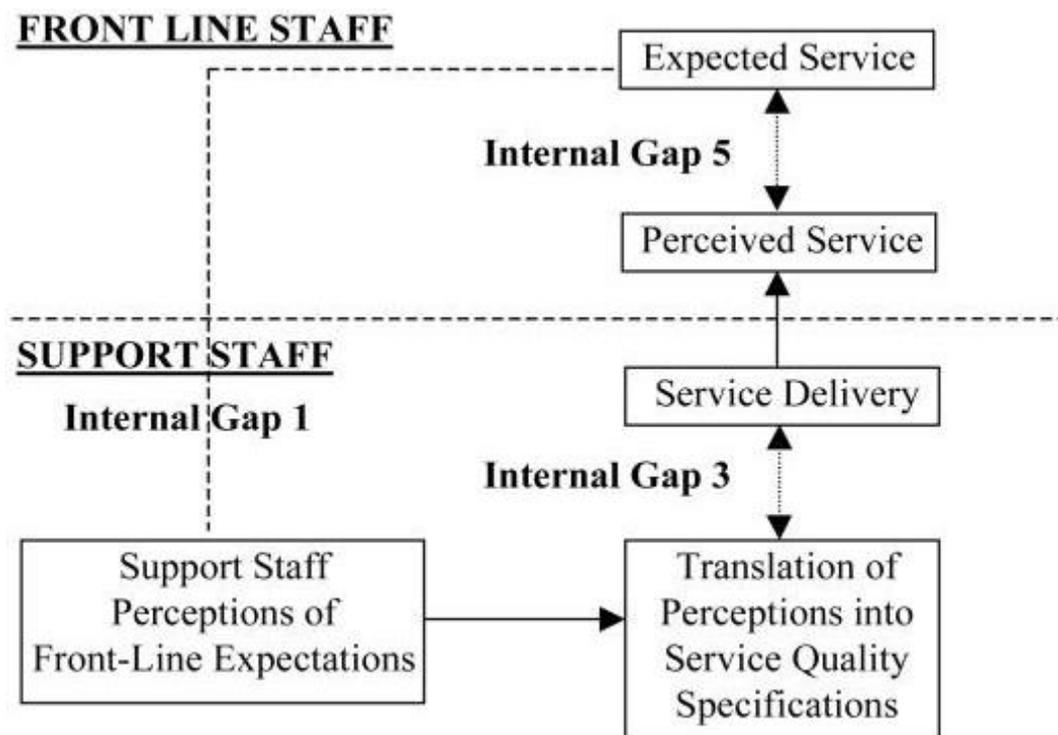


Figure 4: The internal service quality model (Frost & Kumar, 2000)

Moreover, Luk and Layton (Luk & Layton, 2002) developed the traditional GAP model of Parasuraman et al. (1985) by adding two more gaps. They believe employees are also involved separately from managers to the measurement. As a result, they add the employees' perceptions of consumers' expectation and found the gap between expected services by consumers and employees' perceptions of consumers' expectation. The second gap added was the difference between employees' perceptions of consumers' expectation and the management perceptions of consumers' expectations.

Based on the gap between expectations and perceptions of the consumers, Parasuraman et al., (1985) suggested 10 dimensions for measuring the gaps in their service quality model; reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding, and tangibles. In 1988 they refined their finding and model but the construction of the model and theory remains the same with the dimensions reduced into five, reliability, responsiveness, assurance (which contains communication, competence, credibility, courtesy, and security), tangibles, and empathy (which contains access and understanding). They named the refined model as SERVQUAL. This model was revised in 1991 and 1994, but its construction and dimensions remain the same with the five suggested dimensions.

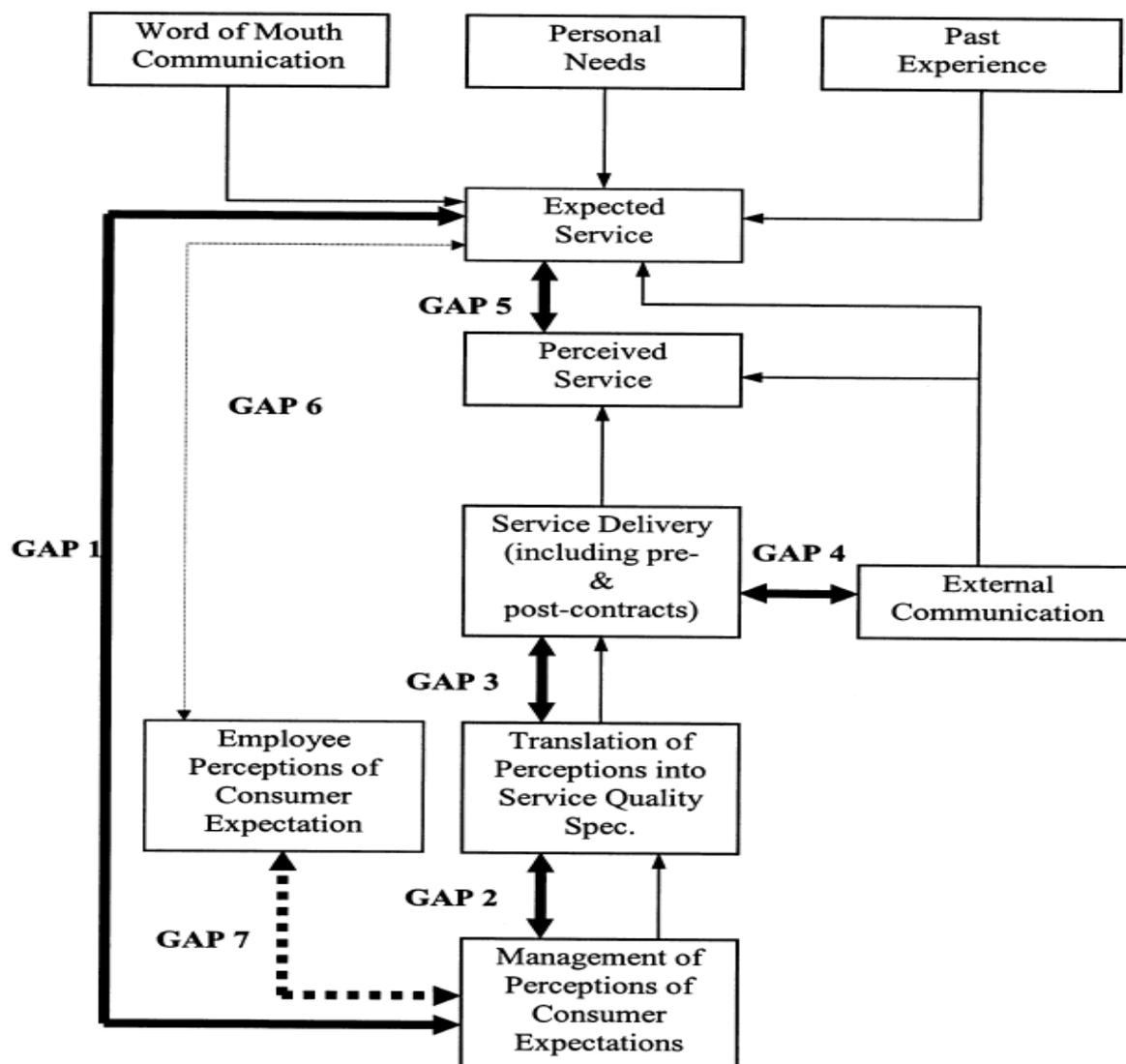


Figure 5: The Extended GAP Model (Luk & Layton, 2002)

Parasuraman et al., (1985; 1988) attempted to take the advantage of comparing with Gronroos model by suggesting the measurement for service quality. SERVQUAL model is a useful tool for managers to identify the gaps in their service (Seth, Deshmukh, & Vrat, 2005). This model is the most used by scholars and practitioners. Although SERVQUAL is the most famous model in service quality after years of researching in this model, scientists noted that the method offered in this model for measuring gaps in different levels is not clear (Brady & Cronin, 2001a; Seth et al., 2005). Some researchers believe that measuring the gap between expectation and perception is not psychometrically able to obtain superior assessment of service quality (Brady & Cronin, 2001a).

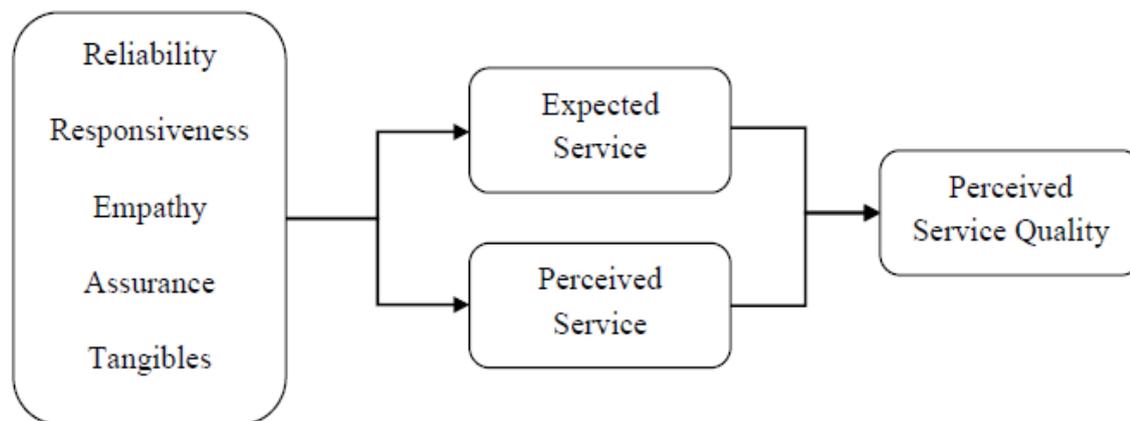


Figure 6: SERVQUAL model (Parasuraman et al., 1988)

### SERVPERF Model

Although SERVQUAL model is a good measurement for many industries, researchers reported that this model is not suitable for some areas like retail store environment (Dabholkar, Thorp, & Rentz, 1996). By years of study on this model and more debates among scientists, some stated that this model is not comprehensive in different applications (Brady & Cronin, 2001a; Dabholkar et al., 1996; Shahin & Samea, 2010). In 1992, Cronin and Taylor suggested the refined model by considering performance as the only factor needs to be measured for service quality. They argued that service quality is a consumers' attitude and the performance (perceived service) of the service is the only measurement for service quality. Investigating service quality relationship with consumers' satisfaction and purchase intention was their study; they believe service quality is an antecedent of consumers' satisfaction. They suggested a new model for service quality based on SERVQUAL with respect to the conceptualization and measurement of service quality which used performance as the only measurement for service quality model called SERVPERF. In this new model, Cronin and Taylor (1992) proceeded to measuring performance (perceived service) with the same dimensions as reliability, responsiveness, assurance, tangibles, and empathy for service quality measurement instead of "expectation-perception" difference. The research finding showed SERVQUAL factors are inconsistent, and SERVPERF is a more accurate measurement for service quality in comparison with SERVQUAL (Cronin & Taylor, 1994; Seth et al., 2005).

### Hierarchical model

Though SERVQUAL has the validity by testing in different service sectors (e.g., banking, telephone service, credit card service) there is no adapted and valid for some sectors like retail store environment (Dabholkar et al., 1996). This measurement has developed during the years and is the base for many other suggested service quality models, e.g. (Cronin & Taylor, 1992; Parasuraman, Zeithaml, & Malhotra, 2005). Researchers found that it needs to be more clear and specific in dimensions of SERVQUAL and some development in the structure of this method (Brady & Cronin, 2001a; Cronin & Taylor, 1992, 1994; Dabholkar, 1996; Dabholkar et al., 1996). Dabholkar found that the construction of SERVQUAL is not adopted for retail store environment. Therefore, Dabholkar, Thorpe, and Rentz (1996) suggested and tested a new model for service quality to develop dimensions and construction based on SERVQUAL and SERVPERF. In this new model they suggested a hierarchical structural model for service quality based on previous literature with dimension and sub-dimension

level. In their suggested model they introduced three stages; service quality (retail service quality), primary dimensions (physical aspects, reliability, personal interaction, problem solving, and policy), and the sub-dimensions for three dimensions are appearance and convenience for physical aspect dimension, promises and doing it right for reliability dimension, inspiring confidence and courteous/helpful for personal interaction dimension. For testing the model and construct validity of the model, they just measured and analyzed the perception of customers to avoid psychometric problems with different scores. However, the construction of model and factors is based on disconfirmation method to determine the gaps in service quality. Validity of this model accepted and showed better structure with more precise factors. However, this model also needs more evidence and some development for generalizing and making it applicable in other service industries. Some researchers in the years after tested and suggested some development for this model in other industries than retail store industry.

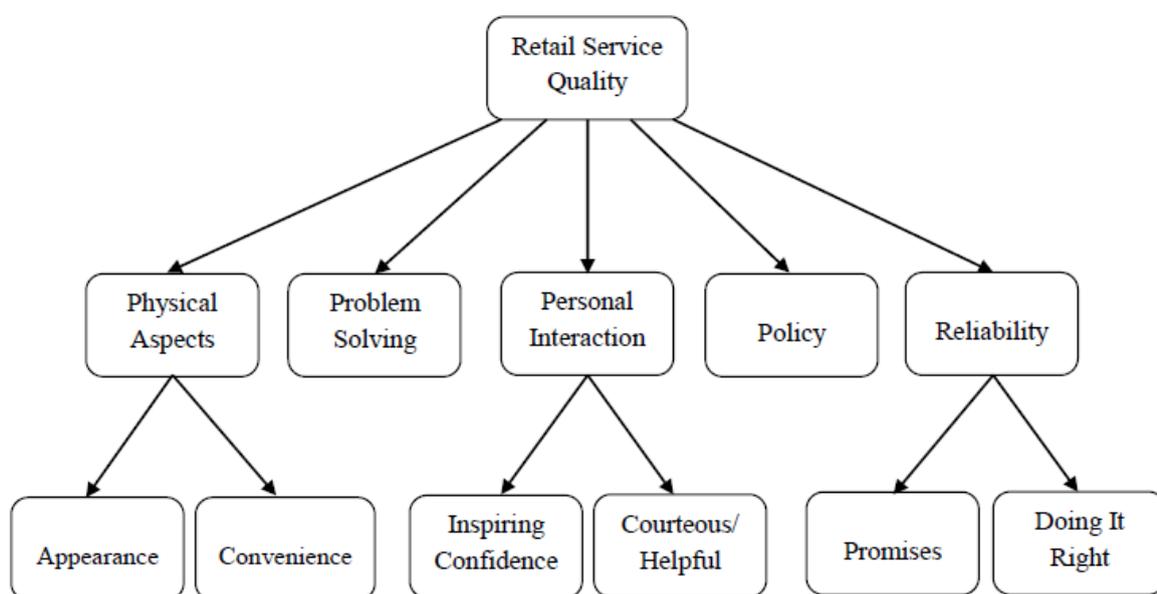


Figure 7: Hierarchical model (Dabholkar et al., 1996)

In 2001 Brady and Cronin proposed a new hierarchical model by developing previous models. They adopted Dabholkar et al.'s (1996) idea that service quality perception is multilevel and multidimensional. They tried to develop SERVQUAL dimensions by refining its dimensions to what should be reliable, responsive, empathic, assured, and tangible. Brady and Cronin believed that SERVQUAL dimensions need to be specifically defined. They adopted two dimension from Gronroos's (1984) model; interaction quality between consumers and employees (i.e., functional quality) and outcome (i.e., technical quality). The third dimension adopted from Rust and Oliver (1994) is service environment. Because of the theoretically strong support for multidimensional and multilevel of service quality, they suggested three sub-dimensions for each dimension; attitude, behavior, and expertise for interaction quality dimension, ambient condition, design, and social factors for environment quality, and waiting time, tangibles, and valence for outcome quality dimension. By specifying these factors, they determined what should be reliable, responsiveness, and empathy as suggested in SERVQUAL model.

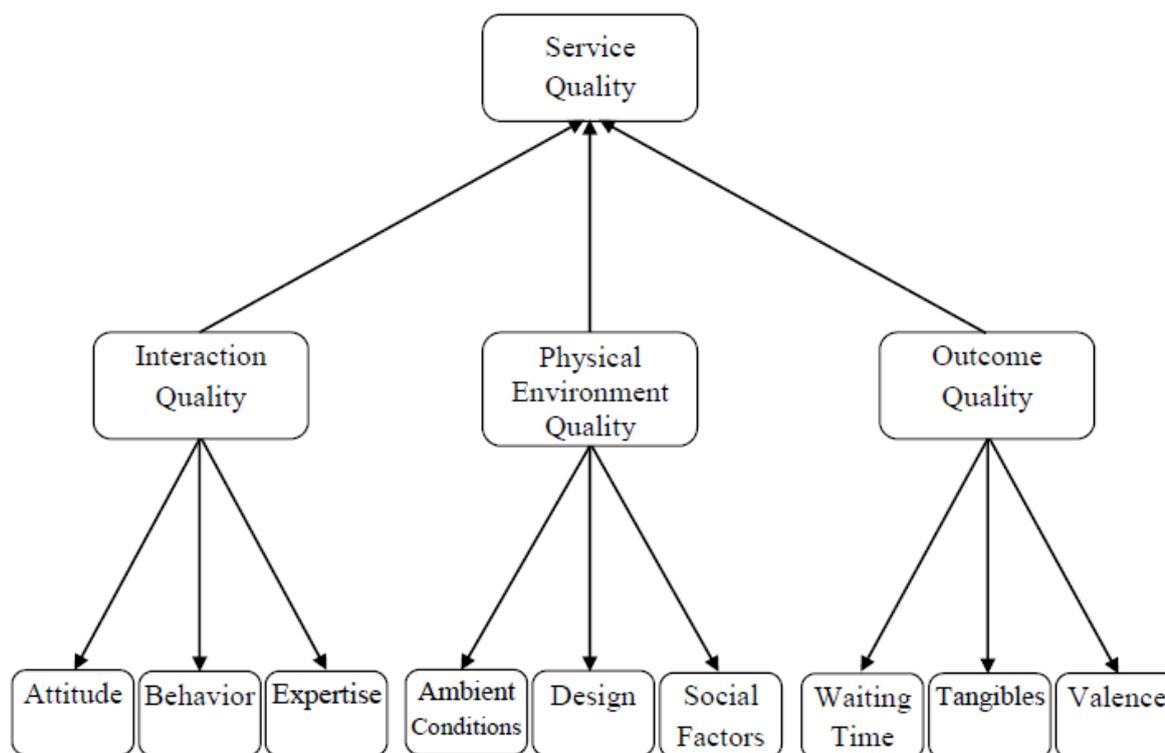


Figure 8: Hierarchical model (Brady & Cronin, 2001a)

This model developed a new way of measuring service quality by having strong literature support and combining several models. In the years after, researchers used this model and studied on developing the hierarchical model. This hierarchical model is generic and applicable for a variety of service industries and it has the ability and flexibility to have different factors depending on diverse businesses (Brady & Cronin, 2001a; Pollack, 2009). Some researchers adopted hierarchical model and developed it by modifying dimensions or/and sub-dimensions based on specific service industries e.g., (Chahal & Kumari, 2010; Dagger, Sweeney, & Johnson, 2007) in healthcare, (Akter, D'Ambra, & Ray, 2010) mobile health, and phone service subscribers and hairdresser (Pollack, 2009). By using different stages (multilevel) and multidimensional in this model, it will enable managers to recognize problems in the primary stage of service provided and finding customers' needs and weaknesses of the service to enhance consumers' perceptions of service quality via offering high quality of services. To date, this model is the most suitable and applicable model for service quality measurement. However, this is a generic model and it needs different factors for some service industries and businesses. This model has the ability to have other dimensions and sub-dimensions related to specific service industries. Some researchers studied this model and proposed hierarchical-multilevel model specifically for a service industry based on hierarchical-multilevel model (Akter et al., 2010; Chahal & Kumari, 2010; Dagger et al., 2007).

#### **Industry-specific service quality models**

Although some of the proposed models have strong validity and are applicable for measuring service quality in many service industries, researchers found that most of them have lack of generalizability for all businesses (Seth et al., 2005). Some of those models have support for applying and testing in different businesses like SERVQUAL, but even that famous measurement has some lack of application for some specific businesses such as retail store

(Dabholkar et al., 1996). Models evaluated in previous parts were generic, but the hierarchical model suggested by Dabholkar et al., (1996) was based on retail store environment. Some researchers believe that businesses need to use a context-specific service quality measurement for the best understanding of consumers' perception on service quality (Dagger et al., 2007). Therefore, researchers suggested some models based on specific service businesses. For example, in the information technology (IT) based services, Berkley and Gupta (1994) suggested IT alignment model, Dabholkar (1996) proposed attribute and overall affect model, Zhu, Wymer, and Chen (2002) suggested IT-based model, Santos (2003) suggested model of e-service quality, and Broderick and Vachirapornpuk (2002) proposed internet banking model. Dagger, Sweeney, and Johnson (2007) developed the Hierarchical model in healthcare industry with some special dimensions and sub-dimensions related to health care services. Akter, D'Ambra, and Ray proposed a new model based on the hierarchical model for mobile health services. However, the base of this model was the hierarchical-multilevel model, one of the dimensions (physical environment quality to platform quality) with new sub-dimensions specifically for mobile health services. Tsauro, Chang, and Yen (2002) evaluated a specific model for the airline industry based on SERVQUAL with several attributes based on airline services by using the fuzzy set theory.

Other researchers proposed a new model for the airline industry in 2002 with the specific criteria category and evaluated criteria for this industry by fuzzy set (Chang & Yeh, 2002). Based on previous studies in airline service quality, a new model proposed by Liou and Tzeng (2007) for airline services with factors suggested and specific for this service business. In 2002 Cunningham, Young, and Moonkyu suggested a new model based on previous studies in airline specific models of service quality for measuring service quality in airline businesses. They suggested baggage handling, bumping procedures, operations and safety, in-flight comfort, and connections as the dimensions of this model scaling by several items for each dimension (Cunningham, Young, & Moonkyu, 2002). In addition, they used SERVPERF in this study for service quality. They found strong reliability and validity for both models (SERVPERF and industry-based). Result showed that both generic and specific models are applicable and acceptable for measuring service quality in the airline industry (Cunningham Lawrence F, Young, & Lee, 2004; Cunningham et al., 2002).

Industry-specific measurements of service quality vary from one business to another and included the factors related to specific service. Therefore, these models can be more useful and specific for applying in businesses and can be helpful for managers to find the weaknesses and advantages of their firm to improve their service and achieve customers' satisfaction. However, the generic models are more theoretical but applicable as well as specific.

### **Summary**

Service quality measurement is the significant managerial tool to understand consumers' needs and wants by analyzing the experience of consumers in the service provided. It can help firms to find their weaknesses and advantages to make a better service for consumers. Moreover, the most important role of service quality is by affecting the customers' satisfaction. High service quality strongly and positively influences customers' satisfaction and consumers' loyalty. Furthermore, it can influence customers' intention to repurchase. Therefore, firms need to measure the consumers' perception of the service quality to offer a better service and improve their firm in today's competitive market.

Although there is no general agreement on one particular model as the measurement of service quality perception, there are some efficient models offered by researchers during

decades of study in this area. Some generic and specific models were proposed, but all of them have their own advantages and shortages. During the recent years, most of the researchers believe that service quality is multidimensional. SERVQUAL and SERVPERF are the most used and famous models in service quality but recently scientists focused more on hierarchical-multilevel structure for service quality perception. Researchers during recent years emphasize that measuring the perception of the service provided is enough and more useful instead of comparing the expectations and perceptions of consumers on the services provided.

Industry-specific models are suitable for measuring service quality in specific service industries, which is the basis of model offered. Generic models (specially the famous models like SERVQUAL/SERVPERF, Hierarchical/Multidimensional) are suitable in the most cases for measuring consumers' perception on quality of services. However, in some cases they are not comprehensive and need to use other applicable model in that service. Both generic and industry-specific service quality measurement – with considering of validation, precise, and suitable model for that particular service industry – are useful and can help managers to find the problem of firm and improve efficiency, productivity, and profitability of firm by improving service quality.

In conclusion, Hierarchical/Multidimensional models and industry-specific models are suggested based on the structure of generic models (mostly based on Multilevel/Multidimensional) which most of them measure only the consumers' perception on the services provided indicates more efficient and effective in measuring service quality. The necessity of having industry-specific models with related dimensions to the particular services has been growing because in some cases, the dimensions suggested by generic models are not covering all the needs for specific service industries. The developments of the service quality model from 1984 until today clarified that lots of changes occurred in the process of providing services from conventional to IT-based services. It is further observed that the outcome of service quality and its measurement is strongly dependent on the types of service settings, situations, time, needs, and other factors. This further adds to the complexity of the subject. The demands for a continuous effort to study and validate modify the existing concepts of service quality.

### **Corresponding Author**

Corresponding author: Ali Ramezani Ghotbabadi (Ph.D candidate, faculty of management, Universiti Teknologi Malaysia (UTM))

Telephone number: 00989366005980

Postal address: Unit B 602, Jaam Talaai 1 condo, alley 8, jahad sazandegi street, 7143757564, Shiraz, Fars, Iran

E-mail: zaosra@yahoo.com

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**Appendices:**

Examples of some industry specific models of service quality measurement:

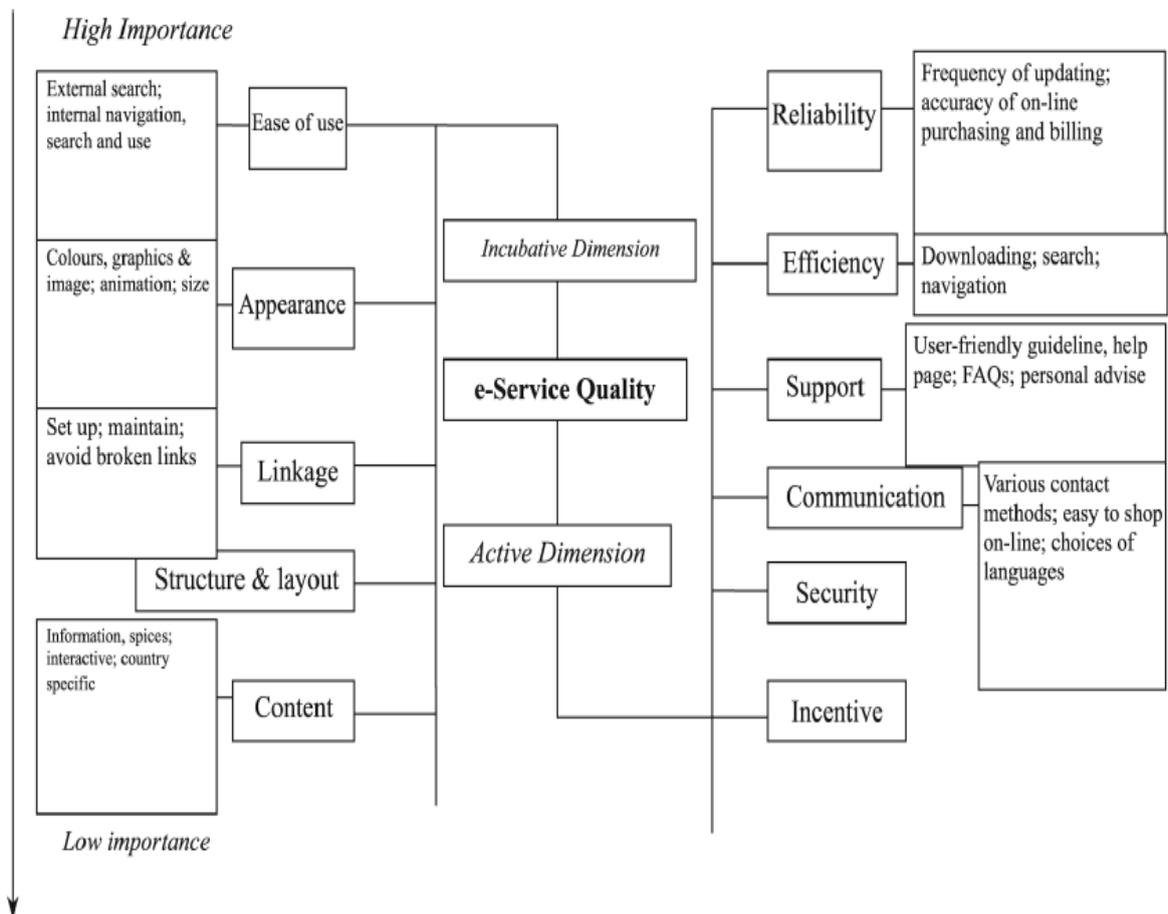


Figure 9: E-Service quality (Santos, 2003)

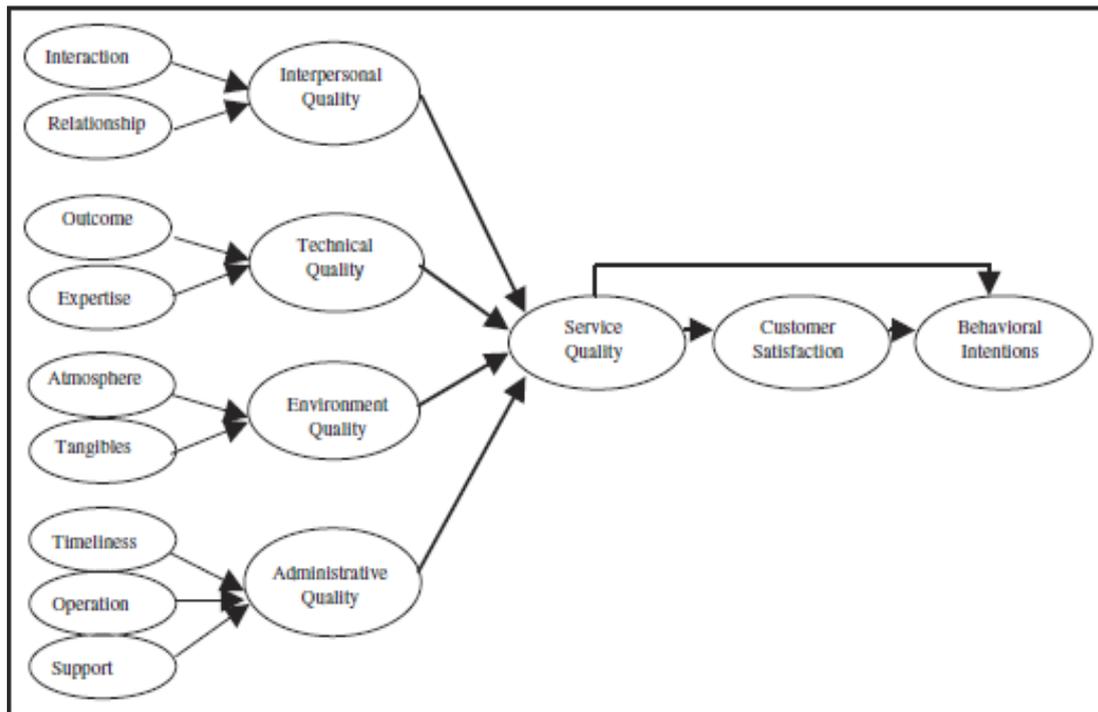


Figure 10: Hierarchical Model of Health Service Quality (Dagger et al., 2007)

Criteria category		Evaluation criteria
Tangibility	C <sub>1</sub>	Comfort and cleanliness of seats
	C <sub>2</sub>	Appearance of crew
	C <sub>3</sub>	On-board entertainment services
Safety and reliability	C <sub>4</sub>	Airline flight safety and security measures
	C <sub>5</sub>	On-time performance
	C <sub>6</sub>	Promptness and accuracy of baggage delivery
Responsiveness	C <sub>7</sub>	Courtesy of crew
	C <sub>8</sub>	Responsiveness of crew
	C <sub>9</sub>	Service efficiency of airline personnel
Assurance	C <sub>10</sub>	Language skills of crew
	C <sub>11</sub>	Competence of flight crew
Empathy	C <sub>12</sub>	Convenient ticketing process
	C <sub>13</sub>	Handling of customer complaints
	C <sub>14</sub>	Extended travel service

Figure 11: Evaluating service quality for Airlines (Kuo, 2011)

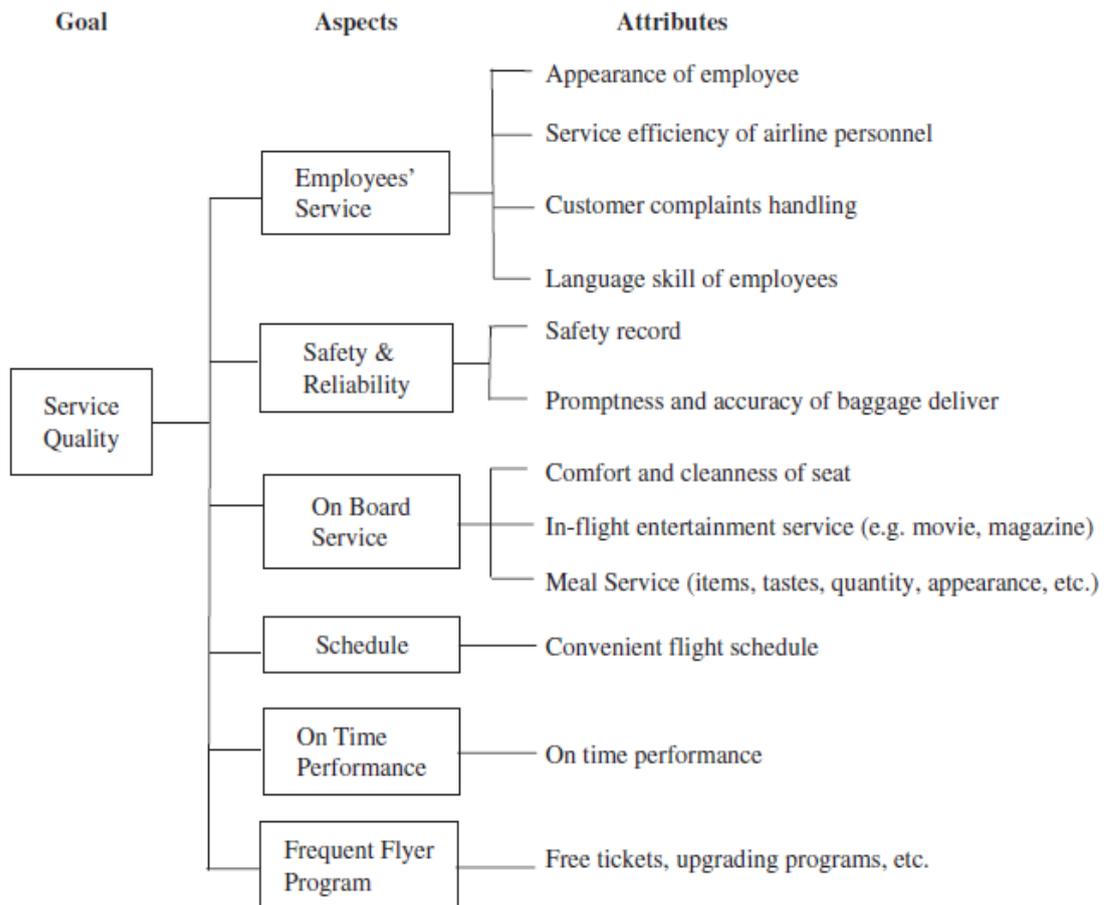


Figure 12: Non-Additive model of airline service quality (Liou & Tzeng, 2007)